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10/603,763	06/26/2003	Hong Chul Kim	8733.856.00-US	4492

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EXAMINER	
SHANKAR, VIJAY	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/603,763	KIM, HONG CHUL	
	Examiner	Art Unit	
	VIJAY SHANKAR	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutome et al (6,037,920) in view of Mikami et al (6,727,875 B1) and Takahashi et al (US 4,789,899).

Regarding Claims 1 and 10, Mizutome et al teaches a ferroelectric liquid crystal display (Fig.3-4; Col.2, lines 40-44), comprising: a liquid crystal display (LCD) panel including a plurality of gate lines, a plurality of data lines crossing the plurality of gate lines, and ferroelectric liquid crystal (FLC) material (Fig.3-4; Col.2, lines 40-44; Col.5, lines 14-24), wherein a plurality of liquid crystal cells (Col.5, lines 14-24) arranged in a matrix pattern are defined by the crossings of the gate and data lines (Column 3, lines 44-67; Col.5, lines 11-25; Col.7, line 56- Col.8, line 21);

and a data driving circuit for applying data voltages to the data lines of the LCD panel in synchrony with the scan pulse (Figs.3-7; Col.3, line 45- Col.5, line 25; Col.8, lines 6-26).

However, Mizutome et al does not teach the liquid crystal display wherein a plurality of thin film transistors connected to the gate and data lines, wherein each liquid crystal cells has a thin film transistor; and a data driving circuit for applying data voltages having the same gray scale value at least twice to the data lines of the LCD panel in synchrony with the scan pulse; and a gate driving circuit for applying substantially identical scan pulses at least twice to each one of the plurality of gate lines during one frame period of the LCD panel .

Mikami et al teaches the liquid crystal display wherein a plurality of thin film transistors connected to the gate and data lines, wherein each liquid crystal cells has a thin film transistor (Fig.1; Column 5, line 54- Col.6, line 67; Col.7, line 40- Col.8, line 52); and a data driving circuit for applying data voltages having the same gray scale value at least twice to the data lines of the LCD panel in synchrony with the scan pulse (Col.8, lime 60- Col.9, line 22; Col.13, lines 1-25).

Takahashi et al teaches the liquid crystal display comprising a gate driving circuit for applying substantially identical scan pulses at least twice to each one of the plurality of gate lines during one frame period (Fig.4; Col.3, line 30-65) of the LCD panel (G1, G2...Figure 4; Column 1, line 61- Col. 4, line 14).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the teaching of Mikami et al and Takahashi et al into Mizutome et al for getting high quality display getting better gray scale for driving the liquid crystal display .

Regarding Claims 2 and 11, Mizutome et al teaches the ferroelectric liquid crystal display wherein the liquid crystal cell is a Half V-Switching Mode LFC cell (Column 5, lines 14-49; Col.7, line 56- Col.8, line 20).

Regarding Claims 3-4, Mizutome et al teaches the ferroelectric liquid crystal display further comprising a timing controller for controlling the data driving circuit and the gate driving circuit and the ferroelectric liquid crystal display wherein the timing controller generates a multiple gate start pulse for causing the gate driving circuit to sequentially generate the scan pulse and for supplying the multiple gate start pulse to the gate driving circuit (Figs.3-7; Col.3, line 45- Col.5, line 25; Col.8, lines 6-26).

Regarding Claim 5, Mizutome et al teaches the ferroelectric liquid crystal display wherein the multiple gate start pulse is generated at least twice during the one frame period of the LCD panel. (Figs.3-7; Col.3, line 45- Col.5, line 25; Col.8, lines 6-26).

Regarding Claims 6 and 13, Mizutome et al teaches the ferroelectric liquid crystal display wherein the data driving circuit applies identical data voltages to the plurality of data lines at least twice during the one frame period of the LCD panel. (Figs.3-7; Col.3, line 45- Col.5, line 25; Col.8, lines 6-26).

Regarding Claims 7 and 14, Mizutome et al teaches the ferroelectric liquid crystal display wherein the data driving circuit maintains a polarity of the data voltage applied to the data lines during the one frame period of the LCD panel. (Figs.3-7; Col.3, line 45- Col.5, line 25; Col.8, lines 6-26).

Regarding Claims 8 and 15, Mizutome et al teaches the ferroelectric liquid crystal display wherein the data driving circuit inverts a polarity of the data voltage applied to the data lines at least once during the one frame period of the LCD panel. (Figs.3-7; Col.3, line 45- Col.5, line 25; Col.8, lines 6-26).

Regarding Claim 9, Mizutome et al teaches the ferroelectric liquid crystal display wherein the timing controller includes a memory device for storing data such that substantially identical data voltages are suppliable to the LCD panel at least twice during the one frame period of the LCD panel. (Figs.3,9-10; Col.7, line 31- Col.8, line 65).

Regarding Claim 12, Mizutome et al teaches the driving method of

the ferroelectric liquid crystal display further comprising generating a multiple gate start pulse for controlling the scan pulse, wherein the multiple gate start pulse is generated at least twice during the one frame period of the LCD panel. (Figs.3,9-10; Col.7, line 31- Col.8, line 65).

Response to Arguments

4. Applicant's arguments filed 8/14/07 have been fully considered but they are not persuasive.

Applicant argues that the combination references do not teach the ferroelectric liquid crystal display wherein a data driving circuit for applying data voltages having the same gray scale value at least twice to the data lines of the LCD panel in synchrony with the scan pulse; and a gate driving circuit for applying substantially identical scan pulses at least twice to each one of the plurality of gate lines during one frame period of the LCD panel .

However, Mikami et al teaches the liquid crystal display wherein a data driving circuit for applying data voltages having the same gray scale value at least twice to the data lines of the LCD panel in synchrony with the scan pulse (Col.8, lime 60- Col.9, line 22; Col.13, lines 1-25).

Takahashi et al teaches the liquid crystal display comprising a gate driving circuit for applying substantially identical scan pulses at least twice to each one of the plurality of gate lines during one frame period (Fig.4; Col.3, line 30-65) of the LCD panel (G1, G2...Figure 4; Column 1, line 61- Col. 4, line 14).

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIJAY SHANKAR whose telephone number is (571) 272-7682. The examiner can normally be reached on M-F 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BIPIN SHALWALA can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VIJAY SHANKAR
Primary Examiner
Art Unit 2629

VS